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ABSTRACT

A study examined whether a multisensory approach to spelling instruction would have an impact on spelling achievement. It was hypothesized that there would be no significant difference in the spelling performance os students using a multisensory approach and those using a conventional approach. Subjects were 20 heterogeneously grouped third-grade students (10 boys and 10 girls) in a middle-class suburban school district. The students were placed randomly into 2 different samples and given a pretest of 60 high frequency writing words, with the list broken down into 4 lists of 15 words, given each week in the form of a spelling contract. Students in the experimental sample were taught using a multisensory approach (VAKT), while a more conventional test/study/test approach was used with the second group. Visual and auditory activities were used. After instruction, posttests were given and results were analyzed using t-tests of mean differences. Pre- and post- writing samples were taken to evaluate the students' spelling in their daily writing. Results indicated that there was an 11% difference in mean scores of posttests. Findings suggested that the study's hypothesis was supported and no significant difference between the two samples was found. More significant differences may have occurred if this study were conducted over a longer period of time. (Related literature, pre/post test scores, and a word list are appended. Contains 29 references.) (Author/CR)

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ED 405 564

A Multisensory Vs. Conventional Approach to Teaching Spelling

by
Nancy Murphy

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Abstract

This was a study of twenty heterogeneously grouped third grade students in a middle-class, suburban school district. There were ten boys and ten girls identified. The students were placed randomly into two different samples. They were given a pretest of sixty high-frequency writing words. The list of sixty words was broken down into four lists of fifteen words. Each week students received their list in the form of a spelling contract. Students in Sample One (the experimental sample) were taught using a multisensory approach (VAKT). A more conventional test/study/test approach was used with Sample Two. Visual and auditory activities were used. After instruction, post tests were given and results were analyzed using t-tests of mean differences. Furthermore, pre and post writing samples were taken to evaluate the students' spelling in their daily writing. No significant difference between the two samples was found.

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Why do students who score 100% on weekly spelling tests continue to misspell these same words in their writing? Furthermore, why can students spell difficult words on a spelling test, yet misspell the words they are used most often in their writing? What method of teaching spelling are most effective? These questions and more will be explored in this study.

Currently, most teachers use a traditional test/study/test method of teaching spelling, which is a conventional approach. The student is given a pretest at the beginning of the unit. Words that are misspelled become their study list. At the end of the week students are given a post test.

A multisensory approach to spelling instruction may have an impact on spelling achievement. The multisensory method, also known as VAKT (visual-auditory-kinesthetic-tactile) implies that students learn best when information is presented in different modalities (Mercer & Mercer, 1993). Kinesthetic (movement) and tactile (touch) modalities are used along with visual and auditory. Activities such as tracing, hearing, writing, and seeing represent the four modalities. Tactile and kinesthetic modalities can be emphasized

by using sandpaper letters, sand trays, or raised letters.

Graham and Freeman (1986) found a study strategy to help those with learning problems recall correct spellings. This strategy included the following steps:

1. Say the word.
2. Write the word.
3. Check the word.
4. Trace the word.
5. Write the word from memory and check.
6. Repeat

This group was able to recall the correct spellings of more words than those who were allowed to choose their own study method.

Blau and Loveless (1982) suggest that we emphasize the visual aspect of VAKT too much. Their approach is based on the tactile modality. In their study, subjects were blindfolded to cut off the use of the visual modality. They were successful in terms of immediate recall, but not in delayed recall.

Similarly, Murphy (1990) examined the effects of tactile and kinesthetic teaching methods on spelling performance. It was found that tracing words with the index finger of the dominant hand improved weekly test scores, but not long term retention of words.

Does a multisensory approach to teaching spelling have an impact on achievement? Will these results be reflected in students' writing?

Hypothesis

To provide evidence on these questions the following study was undertaken. It was hypothesized that there would be no significant difference in the spelling performance of average third grade students who are taught with a multisensory approach to spelling or a conventional test/study/test approach.

Procedures

The subjects for this study were twenty third grade students in a regular education class. The students were heterogeneously grouped within a suburban community elementary school. Ten of these students were boys and ten were girls. This study was conducted with the classroom teacher as the experimenter. Students were randomly placed into two different samples. Instruction took place for twenty minutes daily.

All students participating in the study were given a pretest on the list of sixty high-frequency writing words. Errors from the list of sixty high-frequency words were tallied. Results were analyzed using a t-test of the mean differences. Additionally, a twenty minute writing sample was analyzed for misspellings.

The list of sixty words was broken down into four word lists of fifteen words each. Each week all students received the same list of words in the form of a spelling contract. Words were listed as well as activities to be completed.

At the beginning of each week a pretest of fifteen words was

given. Next, students were given the correct spellings of each word which they recorded next to the pretest column. For the rest of the week the students were divided into two samples. Sample One (the experimental sample) was taught spellings by the teacher using a multisensory approach. Activities involved visual, auditory, kinesthetic, and tactile modalities. Students traced words with their index fingers and learned a study method in which students were instructed to: SEE the word, SAY the word, TRACE the word, and WRITE the word. The other sample was given activities such as writing the words a certain number of times, writing words in sentences, and writing words in alphabetical order. Both groups were given many opportunities to use these words in their writing. Post tests were given to all subjects on Fridays. Errors were tallied by the examiner.

At the conclusion of the study, a post-writing sample was taken to be analyzed, as well as a post test of all sixty list words. Results of the post test were analyzed using a t-test of the mean difference.

Definitions

Multisensory approach-- An approach using four sensory modalities: visual, auditory, kinesthetic, and tactile.

High-frequency words--Words appearing often in student and adult writing.

Test/study/test approach--A pretest of spelling word is given. Students study the list of words and complete various activities before a post test

is given.

Pretest--Test of spelling unit words given before instruction takes place.

Post test--Test of spelling unit words given after instruction takes place.

Results

As can be seen in table I, there was a minor difference between

Table I

Means, Standard Deviations and t of the
Samples' Pre-Experiment Scores

Sample	M	SD	t
VAKT	60.40	22.96	0.19
VA	58.40	21.91	

Not Significant

the means of the samples' achievement at the onset of the study and this difference was statistically not significant.

There was a difference between the mean' of the samples' achievement at the conclusion of the study. The statistical data presented in Table II shows that the VAKT sample performed better

Table II

Means, Standard Deviations and t of the
Samples' Post-Experiment Scores

Sample	M	SD	t
VAKT	87.10	11.89	1.45
VA	76.10	20.91	

Not Significant

than the VA sample, however the difference was statistically not significant.

Pre and post writing samples were also analyzed for errors. There was a minor difference between the mean of the total percent of words spelled correctly on the pre and post writing samples. Upon analyzing the pre-experiment writing sample a mean of 93.4% of the words were spelled correctly among the VAKT sample, whereas the VA sample spelled 91.3% of the words correctly. A difference of 2.1% was found. In post-experiment writing samples the VAKT sample spelled 96.4% of words correctly, while the VA sample spelled 95.3% of the words correctly, a difference of 1.1%. These results were found not to be significant.

Conclusions

The statistical data in this study indicates that the hypothesis of this study is accepted. There was no significant difference found in the spelling performance of average third grade students who are taught with a multisensory approach to spelling or a more conventional test/study/test approach.

Although the difference between the two samples was found to be statistically insignificant, a mean difference of 2% was found in pretest scores of VAKT and VA samples, whereas a mean difference of 11% was found in their post test scores. Considering the short duration of this study a difference of 11% in mean scores seems to show some support for the VAKT method. It is speculated that more significant differences may have occurred if this study were conducted over a longer period of time.

At the beginning and the end of this study, students were given a twenty minute period to write a story. The number of spelling errors was tallied. A percentage score was given by dividing one hundred by the number of words in the sample, then multiplying by the number of errors and subtracting from one hundred. As you can imagine, this was a tedious process. The results of this data not only proved to be statistically insignificant, but also not very useful. Students' writing samples varied in length, but tended to be short, leaving fewer opportunities for spelling errors to occur. Upon reexamining this portion of this study, dictation may have been a better choice for assessing students spelling within the context of writing.

Throughout this study all students were repeatedly exposed to

high frequency words and given many opportunity for writing. It was noted that students in both samples did become more concerned with spelling. They seemed to be developing somewhat of a "spelling conscience" . Although data could not be collected in this area, the effects of students' attitudes toward spelling would be an interesting topic for future research.

Spelling: Related Literature

Spelling is one of the most researched areas in language arts, yet many questions in this area still remain. There are many methods of teaching spelling. Beginning with the word lists, some teachers choose words from traditional spelling books, while others use high-frequency words from students' writing. Some teachers use a traditional visual-auditory approach to teaching words, while others use a multi-sensory approach that emphasizes the use of kinesthetic and tactile modalities. Teachers also vary in the amount of time they devote to the teaching of spelling. Some teachers spend more time teaching the rules of spelling, while others devote more of their classroom time to writing. After all, as Hillerich (1977) points out, "Correct spelling is nothing more than a courtesy to the reader. The whole point in learning how to spell is to be an effective writer." (p. 304) This leads us to the conclusion that there are many different ways to teach spelling.

One group of researchers, including Gillingham, Stillman, Hanna, Hodges and many others, have the belief that the English language is "primarily regular". Spelling is seen as learning a variety of rules that apply to the spelling of the 44 speech sounds (Seda, 1989). Hanna et. al. came to the conclusion that the English language is consistent enough to give instruction in the rules of spelling. However, their 1966 study indicates that 50% of the English language is regular. What about the other 50%? (Groff, 1979; Hillerich, 1977). In an analysis of language Hanna et al. (1966) found that a computer with 203 spelling rules was able to spell 17,000 words with 49% accuracy. In a study done by Simon and Simon (1973) using the same 203 rules, poorer spelling accuracy was found with fifth grade students. As Seda (1989) points out, spelling words phonetically would result in being correct half of the time. By the standards of our society this is not acceptable. Still, most spelling

programs emphasize the teaching of spelling generalizations which theoretically allow children to spell words that have never been studied (Hillerich, 1977).

Another camp of researchers, including Hillerich, Horn, Groff, Graves, and many others, have an "irregular view" of spelling. They believe that the English language is "highly inconsistent and does not possess a one-to-one grapheme-phoneme relationship" (Seda, 1989). Graves (1976) believes that the goal of spelling instruction should focus on learning to spell the words that students use in their writing. Furthermore, studying many rules takes away time that could be used to learn more words (Groff, 1979).

There is support for using a high-frequency word list as opposed to one based on spelling patterns. It is pointed out by Hillerich (1977), that 8 words account for 18% of the words in children's writing, while 100 words account for 50% of the words used. 1,000 words account for 89%, 2,000 for 95%, and 3,000 for 97% of the words used in children's writing. Wilde (1990) criticizes these figures because they suggests that it is not necessary to teach children a greater number of words, since a small number make up the words that they use in their writing. It is impossible to teach children all of the words they need to know. It is suggested by Graham, Harris, Loynachan (1996) and their colleagues that a component of the spelling program should teach children to take advantage of the regularities that do exist in the spelling of English words. Using spelling patterns can help students predict the spelling of unknown words.

Hillerich (1977) suggests that teachers do not need spelling books, but rather a good word list. The list should be pretested with immediate correction by the student. According to Hillerich, the student should be able to spell fifty to seventy-

five percent of the words correctly. If the student is unable to do this it is an indication that the words are too difficult. Instruction in the study method should follow. Hillerich notes that the study method established by Horn (1919) is an effective way to study words for spelling and involves visual, auditory, and kinesthetic modalities. The study method includes these steps:

1. Look at the word and say it to yourself.
2. Close your eyes and try to see the word as you spell it to yourself.
3. Check to see if you were right.
4. Cover the word and write it.
5. Check to see if you were right.
6. Repeat steps 4 and 5 two more times.

Hillerich further suggests that one hour a week is an adequate amount of time to carry out this approach.

Self-correction has been found to be an important component of spelling programs. T.D. Horn, (1947) indicates that the pretest with immediate self-correction accounts for ninty-five percent of learning in a spelling program. According to Fitzsimmons and Loomer (1978) "the child correcting his own spelling test, under the direction of a teacher, is the single most important factor in learning how to spell" (p.6). Ganchow (1983) found that students' spelling performance improved when using a spelling key for immediate feedback.

Recent studies have also been conducted to test the effectiveness of self-correction. McNeish et al. (1992) conducted a study with five learning disabled middle school students. They found that an average of 4.8 more words were learned during the self-correction condition than the traditional condition. Wirtz et al.

(1996) conducted a similar study with a different population. The subjects in their study were low-achieving , third grade students in a regular classroom. During the traditional condition, a sequence of different instructional tasks were given for four consecutive days. During the self-correction condition, students wrote words from his or her list that were dictated by a tape recorder. they then compared their words to an answer key. The results indicated that an average of 7.5 words were learned per week during the traditional condition and 11.5 during the self-correction condition.

How does each one's view of spelling effect the way spelling is taught? In a paper presented at the Annual Meeting of the National Reading Conference, Stetson (1984) classifies methods of instruction into three groups which he calls "subskills", "holistic", and "eclectic". The "subskill" method emphasizes the learning of spelling rules and exceptions. Drill in phonics is a popular activity. The "holistic" method emphasizes the learning of words in their whole form (the exact opposite of the "subskill" method). High-frequency words are selected. Instruction involves visual, auditory, and kinesthetic imagery. Finally, he describes an "eclectic" approach as one that includes an equal number of activities from each of the other methods.

Teachers vary not only in their methods of teaching spelling, but also in the time they devote to spelling. Some teachers give spelling instruction during an allotted amount of time, while others integrate spelling instruction with the other language arts. According to T.D. Horn (1969), time allotted for spelling should be between 60-75 minutes per week.

In their article titled "Using Spelling Research Effectively in the Elementary

School Classroom", Storie and Williems (1988) state that "...teachers should provide for a systematic teaching of spelling, but along with this, attention should be given to spelling in connection with the whole school program." (p.126) They emphasize that spelling should be learned in a variety of situations, not only during spelling lessons. Students should use the spelling skills they've learned in meaningful situations. The authors suggest involving children in an active writing program in all areas of the curriculum. This helps children develop a need to spell correctly, not just memorize words on a list. It is pointed out that students need to be taught how to transfer spelling skills to their writing. Generalizations can be taught but should be limited to those that have few exceptions and are highly applicable.

A multi-sensory approach to spelling instruction may have an impact on spelling achievement. The multi-sensory method known as VAKT (visual-auditory-kinesthetic-tactile) implies that students learn best when information is presented in different modalities (Mercer & Mercer, 1993) Fernald (1943) developed the VAKT method. This is a multi-sensory technique with a tracing component. Students see the word, say the word, trace it, and then write it. This method has been found to be successful with learning disabled students.

Graham and Freeman (1986) used a multisensory study strategy to help those with learning problems recall correct spellings. First students said the word, wrote the word, and checked the word. Next, they traced and said the word, wrote the word from memory, and checked. This process was then repeated. The group using this study method was better able to recall correct spellings than those who chose their own study method.

In a study done by Murphy (1990), a multi-sensory technique was used to

teach spelling to a 10 year old special education student. In this study the student traced target words with the index finger of the dominant right hand, and wrote target words in sentences dictated by the teacher. Tactile, auditory, and kinesthetic methods of were emphasized in this study. Results indicated that the tracing and dictation methods were effective for this particular student. Other benefits that were not measured included improvement in the accuracy of spelling high-frequency words and improvement in handwriting. It was noted, however, that the subjects spelling performance never reached the average of the students in the regular classroom.

Blau and Loveless (1982) suggest that we emphasize the visual component of VAKT too much, considering that visual perception is a weak area for dyslexics and some others with spelling problems. They further suggest that the visual modality (part of VAKT) is part of the problem, not the solution. Blau and Loveless suggest a technique called "Hemispheric-Routing-TAK-v"with the emphasis on the tactile modality. In their 1982 study, they blindfolded the subjects to cut off the use of the visual modality. Subjects scanned the letters of unknown words with the fingers of one hand rather than eyes. Results showed improvement in immediate recall when the left hand was used, but not in delayed recall. Also, the authors point out that the results should be considered exploratory due to the small size of the sample.

A multisensory approach can not only be used with learning disabled students, but also has benefits for non-learning disabled students as well. In a four year study done by Vickery, Reynolds, and Cochran (1987), a mastery learning program called MTARSH (Multisensory Teaching Approach for Reading, Spelling, and Handwriting) was implemented. Subjects were remedial and non-remedial

students in grades three through six. Reading and spelling instruction included phoneme-grapheme correspondences, pronunciations, and spelling rules. Techniques of synthesizing phonics and memorizing whole words were used. Multisensory techniques based on those developed by Fernald (1943) were used to memorize irregular words. Also, letters and letter clusters were taught using multisensory steps recommended by Gillingham and Stillman (1956).

Scores on CAT tests indicated that there was an improvement over baseline scores for both remedial and non-remedial students after instruction by the MTARSH Program. These trends, however, were not as pronounced in the fourth grade scores. The authors also indicate that MTARSH Program could be used prior to grade three and beyond grade six.

Although there is plenty of research on spelling, the question remains--How do teachers actually teach spelling? Many teachers are dependent on textbooks for spelling instruction, but do teachers use the methods supported by research? In other words, is there a gap between research and practice in the classroom? Fitzsimmons and Loomer (1977) conducted a study to see if teachers instructional procedures were consistent with research findings. When they surveyed 1,289 teachers teaching grade two through six, they found that teachers often did not use the procedures supported by research. It was also found that many teachers agreed with supported procedures, but did not use them.

Furthermore, a similar study done by Stetson (1985) indicated that a great number of teachers believed in using procedures that are the exact opposite of those in research findings. Stetson points out that many teachers believe strongly in textbook methods although they may not be supported by research.

In an exploratory study conducted by Gill and Scharer (1996), the researchers found that many teachers were dissatisfied with their current spelling programs. The authors used a survey and individual interviews with teachers to gain insight into teachers questions about spelling. They also held small group discussion sessions during inservice sessions and instructed teachers in a more developmental approach. Teachers were instructed in how to use the Qualitative Inventory of Word Knowledge (QIWK) to learn about their students capabilities as spellers. By administering the QIWK teachers were able to identify their students instructional levels, as well as analyze errors. They were able to document achievement during various writing assignments as well as on more formal assessments. Teachers varied in the number of changes they made to their programs. Some began to rethink the criteria for choosing spelling words, use multiple lists and use misspelled words from students' writing that were developmentally appropriate. Some teachers began to link spelling and writing through mini-lessons based on errors in students' writing. Others planned on making changes in the future. Progress was made, but teachers indicated their need for continued support in the area of spelling.

Spelling is an extraordinarily complex area of study. Researchers support using lists containing words that are likely to occur in children's writing (Hillerich, 1977: Storie & Williams, 1988). An overreliance on teaching spelling generalizations may cause phonetic misspellings. It seems only sensible to spend time teaching students generalizations that are consistently predictive (Hillerich, 1977). Hillerich (1976) further suggests the use of words in meaningful context such as in writing. Children should be given opportunities for daily writing. Research

also supports the use of a pretest with immediate self-correction by the student (Fitzsimmons & Loomer, 1978). Self-correction is considered one of the most important factors in learning how to spell. There is also research that supports the use of a multisensory method of teaching spelling. The multisensory method known as VAKT suggests that students learn best when information is presented in different modalities (Mercer & Mercer, 1993). Perhaps an eclectic approach is the most efficient way to teach all children spelling regardless of their learning styles.

In her article "The Spelling Performance of Regular and Special Population Students and Ways to Help Them," Milagros Seda (1991) suggests many helpful strategies that have been discussed here and are are supported by research. Some of them are listed below:

1. Devote more time to actual writing.
2. Pretest prior to instruction.
3. Allow students to correct their own errors.
4. Use a multisensory spelling strategy.
5. Spend no more than 75 minutes a week on spelling instruction.
6. Use spelling books judiciously.
7. Choose high frequency words.
8. Avoid telling students to "sound it out".

In conclusion, correct spelling is not only important on a Friday spelling test, but in all areas of the curriculum. It is not only important to educators, but also to society. Educators need to be aware of the current research in spelling and put that knowledge to use in the classroom.

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Appendices

Appendix A: Pre/Post Test Scores

Sample	Pretest	Post test
Sample 1 (VAKT)		
1	28	67
2	82	98
3	30	63
4	93	93
5	46	92
6	73	95
7	78	90
8	57	98
9	42	77
10	75	93
Sample 2 (VA)		
1	78	97
2	63	92
3	44	75
4	44	39
5	80	98
6	47	78
7	44	58
8	88	97
9	77	87
10	20	48

Appendix B: Word List

against	every	leaves	than
among	example	lives	that's
answer	first	morning	their
because	friend	often	there
become	half	once	thought
brought	heard	people	threw
build	however	perhaps	through
certain	hundred	piece	toward
children	important	probably	usually
complete	instead	question	were
country	its	really	where
course	it's	remember	whether
didn't	knew	several	which
different	learned	special	while
enough	least	suddenly	who